tions including IA. Th2 cytokines, i.e. interleukin-4 and −10, have down-regulatory effects on antifungal phagocytic activity against *A. fumigatus*. Neutralization of these cytokines and their immunosuppressive function has beneficial effects on murine models of IA. The in vitro and in vivo demonstrations of improved outcome of IA by the regulation of these cytokines offer novel approaches in the management of this serious infection in immunocompromised patients. Further evaluation of safety and efficacy of these immunotherapeutic modalities is a new and promising area for research.

S18 – Resistant pneumococci - what we have learnt . . .

TuS30 What is pneumococcal resistance? The role of pharmaco-dynamics in determination of breakpoints

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Penicillin resistance in pneumococci is caused by mutations in the genes coding for the penicillin-binding proteins (PBP) leading to reduced affinity for binding of the antibiotics to the PBP's. Additionally changes may take place in other enzyme systems not related to the PBP's. Increasing number of mutations in PBP's, or changes due to transformation, leads to increasing MIC's of beta-lactam antibiotics, while the activities of all other antibiotics are unaffected. The killing effect of penicillin at similar multiples of the MIC's is usually the same in susceptible (PSP) and resistant (PRP)strains. If PBP2x is altered, tolerance towards penicillin may develop. The higher MIC's have the consequences, that increasing sizes of doses of beta-lactam antibiotics are necessary. A clear-cut breakpoint is difficult to define with the stepwise increase in MIC's. The limit for effect in vivo will be when the necessary dose to achieve active concentrations at the site of infection exceeds the tolerance of the host. Thus, treating meningitis is problematic due to the difficulty of beta-lactams to penetrate the blood-brain barrier. Optimal use of pharmacodynamic principles can, however, reduce the size of the dose necessary for effect against PRP. It is now clear from various experimental animal models, that the pharmacokinetic parameters governing the effect in vivo for penicillins against PSP, i.e. the time > MIC, is the same for PRP's. Those beta-lactams that have the highest activity against PRP's and that can achieve high and sustained non-proteinbound concentrations at the site of infections will therefore have decisive roles in treatment of PRP's. Also, certain drug combinations can be of benefit against strains with high MIC's.

TuS31 Antibiotic treatment: Does it make a dierence? The search for new end points in clinical trials

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Two questions regarding infections in which *Streptococcus pneumoniae* may be involved are (i) is antibiotic (AB) treatment always necessary in common respiratory tract infections (RTIs)? (ii) what is the incidence of resistance to AB on outcome and therapeutic strategies? *S. pneumoniae* is involved in different RTIs and may induce severe complications. It is suspected in the presence of evident clinical symptoms with high fever. Reduced susceptibility to penicillin in RTIs is overcome by increasing amoxicillin doses. Resistance to macrolides or TMP/SMZ is accompanied by clinical failures. Clinical trials should only include patients at high risk of being infected by a pneumococcus and actually needing AB, with discussion of the diagnostic procedures to get the organism. In phase 2 trials those investigations are mandatory to establish the intrinsic activity of the new drug. In phase 3 trials, the need for investigations should be based on the current practices for the given infection. Strong evaluation criteria should be retained to perform an objective evaluation of the potentialities of the drug. This is easier if only severe infections are considered. Careful analysis of failures should be made, along with serum drug levels. Susceptibility of persisting organisms must be compared to that of the initial strain. This helps define in vivo breakpoints. As it is difficult to achieve these goals in clinical trials, in vitro and animal studies on the potential of the new drug to select high level resistant variants and define the limit of the recommended regimens on efficacy are needed.

S19 – Intraabdominal infections

TuS34 Open management of diuse peritonitis

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Even though open management of peritonitis is done frequently the recommendation for its use is based on case series or non-randomized historic cohort studies. Prospective studies do not show any advantage over closed techniques. On the basis of a prospective multicenter study in 334 patients we performed a case controlled study comparing planned re-laparotomy (PL) to relaparotomy on demand. The matching was based on the age of the patient, the number of coexisting diseases, the acute physiology, Score II and the secure source control all of which were found to be significant prognostic factors. There was no difference in mortality, MOF and infectious complications due to suture leaks, recurrent intraabdominal infections and septicemia were more common after PL. Some variables in the PL group, however, indicated that there might be certain subgroups of patients which may benefit from this procedure and that technical details of the procedure are important.

In summary, indications for PL should be made with caution. The most likely patients to benefit from the procedure will be those in whom a proper peritoneal toilet cannot be performed at the first operation and those who are in danger of developing an abdominal compartment syndrom.

S20 – Management of immunocompromised hosts with . . .

TuS38 Imaging techniques for early detection and dierential diagnosis of pulmonary infiltrates

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The two major tasks of radiographic imaging in patients with suspected pneumonia are (1) early detection including localisation of pulmonary infiltrates and (2) characterisation of infiltrates for distinguishing between non-infectious and infectious aetiologies.

Chest radiography (CR) is useful in immunocompetent patients for detection and follow-up of bacterial pneumonia. However, in immunocompromised hosts, during the early phase of infection, CR may fail in about 50% of the cases to detect an atypical pneumonia. Therefore, more sensitive methods are frequently applied. High-resolution computed tomography (HRCT), which is the most sensitive technique of computed tomography to identify infiltrates early on, can safely distinguish between acute inflammation and non-inflammatory conditions such as scar or atelectasis. Therefore, CT became the gold standard in chest imaging, especially in immunocompromised hosts. CT-scanners are widely available. The technical requirements and the costs of HRCT and CT are low in comparison to antibiotics. The radiation dose is about 8–10 fold higher than in CR (spiral-CT: ~50×). Further techniques are discussed. Pattern recognition in HRCT assists in determining the differential diagnoses. Bacterial, fungal and viral pneumonia as well as pulmonary congestion, lymphangiosis, graft-versus host disease, graft-rejection and radiation toxicity appear frequently with specific findings on HRCT. In comparison to bronchoscopy and surgery, HRCT is a non-invasive method and offers the clinician immediately available information for diagnosing a possible underlying disease. However, this information can be helpful in establishing a diagnosis but is not always verifiable. Experience, local epidemeology and clinical information are necessary for the characterisation of infiltrates in immunocompromised hosts.

TuS42 Options and limitations of a surgical approach in patients with invasive pulmonary aspergillosis

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Invasive pulmonary aspergillosis (IPA) is a frequent complication in neutropenic patients and associated with a very high mortality. Diagnosis of IPA is usually based on antibiotic resistant fever combined with localised infiltrates on CT scan developing in neutropenic patients. Bronchoalveolar